FINAL

Microbiological Sampling Report

for

National Oceanic & Atmospheric Administration

Samplings Conducted on the Seventh Floor

of Building SSMC-3

on April 5, 2001

Interagency Agreement #: D8H01CO31200

Task: 0-10

May 2, 2001

Prepared by

US Public Health Service

Division of Federal Occupational Health

Bethesda Central Office

Executive Summary

At the request of the National Oceanic & Atmospheric Administration (NOAA), ***the Department of Health & Human Services, U.S. Public Health Service,*** Federal Occupational Health (FOH) conducted a microbiological sampling in cubicles 7316, 7331, 7464, and 7144 of Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. Sampling was conducted on April 5, 2001. Swab and vacuum carpet dust samples were collected from these cubicles.

Findings are as follows:

- *Stachybotrys chartarum* was not detected from any swab samples collected.
- Very low fungal burden was detected from swab samples collected from various surfaces.
- Fungal levels in carpet dust of these cubicles were at 10^3 - 10^4 CFU/g of fine dust levels, similar to

last year's sampling conducted on February 2000. *Cladosporium, Penicillium,* and *Aureobasidium* were the predominant fungi recovered. *Stachybotrys chartarum* was detected only from the control cubicle, 7331.

· Fungal levels from carpet dust collected from areas of concern and the control areas were similar, and consistent with fungal dust concentrations noted from other non-complain office areas.

INTRODUCTION

At the request of the National Oceanic & Atmospheric Administration (NOAA), ***the Department of Health & Human Services, U.S. Public Health Service,*** Federal Occupational Health (FOH) conducted microbiological sampling in cubicles 7316, 7331, 7464, and 7144 of Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. Sampling was conducted on April 5, 2001. Swab and vacuum carpet dust samples were collected from these cubicles.

EVALUATION METHODOLOGY

Swab Samples

Swab samples were collected from surfaces of supply diffusers, return troughers, and various horizontal surfaces in each cubicle. Each sample was collected by wiping a 4 in^2 surface area with a sterile cotton swab (Culturette^{â}) wetted with holding media. The swab was then placed directly into its holder. Each holder was labeled with an identifiable number. A total of 12 wipe samples were collected from these cubicles.

Vacuum Dust Samples

Dust accumulated on carpeting of each cubicle were collected with a High Efficiency Particulate Air (HEPA) vacuum attached with a special "sock" device. For each carpet sample, a 3-ft by 3-ft area was vacuumed for at least five minutes.

All samples collected were sent for next morning delivery to FOH's Environmental Microbiology Laboratory (EML) in Philadelphia, Pennsylvania for analysis.

Laboratory Procedures

Upon receipt, each swab sample was suspended in sterile distilled water, diluted serially, and inoculated onto agar plates. Both malt extract agar (MEA) and cellulose Czapek agar (CCA) were used for retrieving fungi. At least three dilution series were used for each sample. Each vacuum dust sample was sieved through a 250 mm sieve. The fine dust (< 250 mm) retrieved was then weighed and followed the dilution plating for fungal analysis.

All plates were incubated in a 25˚C incubator. They were examined every other day for up to 10 days to ensure the full recovery of fungi. Fungal identification was based on colony morphology, spores and conidia formation. Total fungal colonies formed on each MEA plate and *Stachybotrys chartarum* on CCA plates were counted and recorded. Fungal levels in samples were presented as colony forming units (CFUs) per measuring unit. For example, CFU/in^2 for wipe samples and CFU/g of fine dust for vacuum dust samples.

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RESULTS AND DISCUSSION

All laboratory analytical reports from FOH's EML are presented in Attachment A in a laboratory report #NOAA-01-13R.

Swab Samples

Most (11 out of 12) samples collected were below the detection limits of 3 CFU/in^2. The only sample showed *Aureobasidium* growth (3 CFU/in^2) was collected from tabletop in cubicle 7464 (sample W8).

Vacuum Dust Samples

Fungal levels in carpet fine dust of these cubicles were at the levels of 10^3 - 10^4 CFU/g of fine dust, levels similar to last year's sampling (Table 1). Predominant fungi detected were *Cladosporium, Penicillium* and *Aureobasidium*, followed by *Alternaria*, *Aspergillus niger*, and *Epicoccum. Stachybotrys chartarum* was detected only from the control area, cubicle 7331 (Table 1).

Table 1. Total fungal levels (CFU/g of fine dust) in carpet fine dust collected from cubicles on the 7th floor of SSMC-3, by vacuum dust sampling, collected on February 24, 2000 and April 5, 2001.

Cubicles **Sampling Date**	**7316**	**7331**	**7464**	**7144**	**7514**	**7749**
02/24/00	7,200 (-)	3,137 (-)	NA**	NA	3,600 (-)	70,588 (-)
04/05/01	6,275 (-)	12,593 (+)	11,273 (-)	3,846 (-)	NA	NA

* +: *Stachybotrys chartarum* was detected on MEA and/or CCA plates.

-: *Stachybotrys chartarum* was not detected on MEA and CCA plates.

** Sample was not collected.

CONCLUSIONS

· *Stachybotrys chartarum* was not detected from any swab samples collected.

· Very low fungal burden was detected from swab samples collected from various surfaces.

· Fungal levels in carpet dust of these cubicles were at 10^3 - 10^4 CFU/g of fine dust levels, similar to last year's sampling conducted in February 2000. *Cladosporium*, *Penicillium*, and *Aureobasidium* were the predominant fungi recovered (common environmental fungi). *Stachybotrys chartarum* was detected only from the control cubicle, 7331.

· Based on visual observations of the area and sampling & analytical data collected during this study, remedial actions are not required. If environmental conditions change or if occupant complaints persist or intensify further investigation is warranted.

ATTACHMENT A

Microbiological laboratory report #NOAA-01-13R for samples

Collected from the seventh floor of SSMC-3, on April 5, 2001.

USPHS DFOH ENVIRONMENTAL MICROBIOLOGY LABORATORY, PHILADELPHIA, PA

LABORATORY REPORT #NOAA-01-13R

Client agency: National Oceanic and Atmospheric Administration, Silver Spring, MD

POIS#/task #: D8H01CO31200 / 0-10

Sampling date: 4/5/01

Dates of inoculation: 4/6/01 (wipes) and 4/7/01 (dust)

General location: SSMC-3, Silver Spring, MD

Specific location: 7th floor

Sampling techniques: Wipe and vacuum dust samplings

Medium used: Malt extract agar (MEA) and cellulose Czapek agar (CCA) for fungi

Samples submitted by: J. Sobelman

Date characterization completed: 4/16/01

(A) Wipe samples on MEA and CCA plates

Sample ID	Sampling Location	Area (in^2)	Dilution factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum**** on CCA @ 25º C
Blank	Blank	NA#	10X-MEA direct-CCA	No fungal growth	Absent
3-7331-W1	7th floor, room 7331, top of cabinet	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7331-W2	7th floor, room 7331, supply	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7331-W3	7th floor, room 7331, top of desk	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7331-W4	7th floor, room 7331, top of shelf	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7316-W5	7th floor, room 7316, desk	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7316-W6	7th floor, room 7316, return	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent

Sample ID	Sampling Location	Area (in^2)	Dilution factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum**** on CCA @ 25º C

3-7464-W7	7th floor, room 7464, desk top	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7464-W8	7th floor, room 7464, top of table	4	10X-MEA direct-CCA	1. *Aureobasidium* (1*) CFU/in^2 = 3	Absent
3-7464-W9	7th floor, room 7464, supply near window	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7144-W10	7th floor, room 7144, top of desk	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7144-W11	7th floor, room 7144, table top	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent
3-7144-W12	7th floor, room 7144, return	4	10X-MEA direct-CCA	No fungal growth CFU/in^2 < 3	Absent

(B) Vacuum dust samples on MEA and CCA plates

Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum*** on CCA @ 25° C
3-7331-V01	7th floor, room 7331, carpet	0.108	40X-MEA 10X-CCA	**1. *Cladosporium* (12)** 2. *Alternaria* (9) 3. *Epicoccum* (8) 4. *Penicillium* (3) 5. *Aspergillus niger*** (1) 6. *Paecilomyces* (1) **CFU/g = 1.3 x 10^4**	Present (1) CFU/g = 93

Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25°C	*Stachybotrys chartarum*** on CCA @ 25° C

3-7316-V02	7th floor, room 7316, carpet	0.102	40X-MEA 10X-CCA	**1. *Aureobasidium* (9)** 2. *Epicoccum* (3) 3. *Cladosporium* (2) 4. *Aspergillus sp.* (1) 5. *Penicillium* (1) CFU/g = 6.3×10^3	Absent
3-7464-V03	7th floor, room 7464, carpet	0.110	40X-MEA 10X-CCA	1. *Aureobasidium* (14) *2.* *Penicillium* (10) 3. *Cladosporium* (6) 4. *Alternaria* (1) CFU/g = 1.1×10^4	Absent
3-7144-V04	7th floor, room 7144, carpet	0.104	40X-MEA 10X-CCA	**1. *Cladosporium* (4)** 2. *Mucor* (4) 3. *Aspergillus niger*** (1) 4. *Trichoderma* (1) CFU/g = 3.8×10^3	Absent

Not applicable.

* Colony counts.

** Opportunistic fungi.

*** Toxigenic fungi.